

Thank you for considering my previous comment. Below I have some further comments/concerned that must be addressed before the manuscript is suitable for publication in GMD.

Considering my previous comment on the language of the comment, and the authors' response "In terms of model physics in the current manuscript, we evaluate the model's ability to simulate SO<sub>2</sub>, long-range transported fine ash (using HAT and SUZUKI options), radionuclides and ash deposition", I suggest renaming the manuscript "FALL3D-8.0: a computational model for atmospheric transport and deposition of particles, aerosols and radionuclides – Part 2: model *evaluation*".

The language should be changed throughout the article to reflect this, e.g. the first sentence of the abstract, "This manuscript presents model evaluation..."

The sentence beginning on Line 93, starting "The eruption had multiple impacts...", has no relevance to the modelling and should be removed.

Sentence beginning line 131, starting "The International...", should be deleted as it contributes nothing to the paper.

Line 159: Which other SO<sub>2</sub> mass estimates? References are needed.

Line 160: "...these retrievals are preliminary and require more robust cross-validation..." These retrievals require more robust cross-validation in order to do what? Use them? This needs to be clarified.

Line 223: It is not clear what the work and findings of Brandt et al. is here – this needs stating if important.

Line 239: Use mm s<sup>-1</sup> to be consistent with the rest of the paper.

Line 246: "radioactive decay" should be changed to "the radionuclide half-life" as explicit radioactive decay (i.e. including daughter products) isn't demonstrated here.

Equation 3: RMSE, Mod and Obs should not be italicised. Else, choose a single letter/symbol to italicise. The variable *j* is not defined. The *i* of *i*-th on line 304 should be italicised. What are the values of *w*<sub>1</sub> and *w*<sub>2</sub>?

Line 410: Write Bq m<sup>-2</sup> for consistency with the rest of the paper.

Throughout: consistency is needed whether "Mt" or "Mt." is written for e.g. Mt Etna.

Figures 4 and 5: Please replace the rainbow colour bar with a colour blind friendly alternative/more linear scale.

Figure 8: "Evaluated on" should be replaced (it wasn't done in 1986). E.g. Modelled total deposition accumulated until 10 May 1968.

Figure 9: Same as Fig. 8 for use of 'evaluated on'. 'Perfect coincidence' should be replaced with 'perfect agreement' or 'one-to-one agreement'.

Figure A4: Lidar images: Do not use a rainbow colour bar. Change to something more linear.

Figures B2 (d)-(f): Do not use a rainbow colour bar. Change to something more linear.

Figure B3: Use a linear/colour blind friendly colour bar on all plots.

Table 5: Change mm/s to mm<sup>-1</sup>. Space is needed between number and units.